# Development in a New Key: Towards a S-A-IN-T-based Development and the Sociology of Information

by

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The purpose of this paper is to launch a discussion on what I refer to as S-A-IN-T -Based development as an outgrowth of the era during which science and technology formed the basis for most of our development work. The acronym S-A-IN-T stands for Science and Information Technology. The main difference between a S-A-IN-T based development approach and development based on Science and technology is that the former predicates development on science and information technology -- in a way limiting technology to information systems and applications, while the latter treats science and technology on a much broader scale. I must hasten to point out that the approach I am advancing here could be seen as parochial given my disciplinary bent and professional orientation.The above is not the case. It is fully understood and recognised that development is multi-faceted, and involves several sectors. What the approach seeks to emphasise is that in the dense forest of development factors, we need to chart our way carefully so as to arrive at clearings where we can erect structures. In order to facilitate such an effort, we have to stay focussed. A S-A-IN-T -based development approach should provide us with that focus.

In addition to the above, the paper also addresses two other concepts that are inextricably linked to a S-A-IN-T-based development approach. The concepts are: the information problematique and the sociology of information. In addressing these concepts, references will be made to communications research, particularly mass communications, and the issues that have bedeviled the field particularly in terms of research paradigms that have mainly been imported from the United States and Europe. The paper is, therefore, not one that is focussed on communications as such, but rather on information technology, which I perceive as a brother/sister of information sciences and technology.

The prominence given to information technology should not come as a surprise.The decade of the sixties and to an extent that of the seventies were inundated with speculations on the powerful role and function of mass media and its concomitant effects and socialization role. Several studies looked at mass media as an entity all by itself without regard for other communication processes. We are now at the dawn of an euphoric era that is witnessing a gradual introduction of the new communication and information technologies to Africa with the same degree of hype that heralded the mass communication field or discipline in the continent. The major difference this time, however, is that these new technologies are small in size and, therefore, potentially available to a significant cross-section of the African western educated elite. In essence, the technologies are coming in before we can stop to pause and ask some fundamental questions regarding the relevance of our approaches to the new information technologies.

Furthermore, these new technologies are all pervasive--this is to say that in practically all sectors of a given country, one would tend to encounter the presence of at least one computer. That was not the case with mass media apparata because they were controlled largely by governments, and they serve purposes that go beyond individual needs as with the need for computers and related new technologies.

In the above regard, one could understand why academics and other professionals were slow to recognize the importance of placing mass media studies within the appropriate socio-cultural contexts in developing nations. The obsession was with "technology transfer" from the North to the South with all the implications--economic, cultural domination etc.--thus thwarting a concurrent development of the sociology of mass communications. We should

not allow this to occur with the new information technologies since, as I mentioned earlier, they are all pervasive with serious economic and potentially serious social consequences.

All of the above leads to the need to examine critically, what I have referred to elsewhere as the "sociology of information". In this paper, I will present three key issues that are linked to what I have also referred to as" the information problematique",and another concept referred to earlier on as S-A-IN-T-based development.

The rationale for linking S-A-IN-T-based development to the sociology of information and the overall information problematique is predicated on the following: Africans can no longer afford to have an agenda for technology use and application set for us in theatres far removed from Africa. As a matter of fact, when one discusses a notion as broad and as complex as the information problematique, one has to be cognizant of the fact that the issue ranges from fundamental questions on research to income generating strategies. What the information technologies can do Africa can be designed and managed by Africans in close collaboration with development assistance organizations and donor agencies. Even though Africa should increasingly be looking into itself and its resources for answers to its development problems and concerns, interested parties in development assistance cannot be excluded readily.

The above is particularly the case with the new information technologies. Whereas mass communication issues and concerns entered the scene through academia, and then the development agencies, the new information and communication technologies descended upon us via commercial channels, then the development agencies and now academia. Given this

sequence of events, it stands to reason that a close scrutiny is immediately necessary in order to plan well with regard to adoption, acquisition, use and impact in African societies.

Since academia (Universities, research and development institutes and centres etc) seems to be the last sector in the chain of absorption of the new information phenomenon, it should be the sector that launches a research agenda on the sociology of information together with issues related to S-A-IN-T-based development. Research centres located in the North with development interests in the South should also collaborate with Academia in the South, particularly Africa, in order to prevent the long and drawn-out debate experienced in mass communication research.

North/South collaboration along the lines mentioned above is readily discernible in eastern and western Africa, when one looks at the School of Information Studies for Africa (SISA) located at the University of Addis Ababa, and the Africa Regional Centre for Information Studies (ARCIS)located at the University of Ibadan,
both set up mainly by the International Development Research Centre (IDRC) of Canada. The SISA and ARCIS programmes could very set the stage for curriculum planning and development in Information Studies in Africa with a strong emphasis on the sociology of information. Let us now review the key issues mentioned earlier.

## 1. The Information Problematique.

One cannot approach the information/communication subject outside of the context of a problematique. By the information problematique I mean, examining the entire range of

issues possible in this sector. The examination can take the form of definitional exercise, parameter construction, scenario building, architectural design vis a vis introducing the new technologies to certain sectors in society, and research and methodological issues in information. Because of the rapidity with which the field has developed, there are a few markers that now constitute benchmarks that influence the growth and development of this field. These benchmarks are: informatics, telematics and geomatics. Other "matics" may eventually emerge. But when looks at the information environment today, nearly all of the activities on information science and technology are based on one or more of the "matics" referred to above. It is precisely because of the current state of affairs in information science and technology that the field should be approached as a problematique.

Besides the above, information science and technology are undoubtedly big-business based and will continue to be so because of the high obsolescence nature of several aspects of information technology and science, notably software development. The problematique would also concern itself with issues ranging from research to entrepreneurial initiatives. People interested in approaching the problematique could use the possible emergence of the information industry in Africa as a point of entry. In short, the information problematique poses for us a wide range of possible activities to investigate, and through such investigations contribute to the agenda on the uses, applications and social impact of these new technologies.

## 2. S-A-IN-T-based Development

The idea of a S-A-IN-T-based development arises from my concern at looking at Information science and technology as a problematique. For the past thirty years or so, we have used unilaterally, the terms science and technology in relation to development in the South.The last thirty years have been characterized by development approaches that are based mainly on the need to apply science and technology towards human development. The various international bodies concerned with development have tended to stress mainly on technology as a means of improving the living standards of populations not only in the South but also in the North. Science as a method has also received equal attention.

There is, of course, more than ample evidence to demonstrate that science and technology have indeed contributed to some aspects of development. There are, after all, huge international agencies that are set up to ensure that science and technology would indeed be put in the service of development in the South. The rationale for stressing "information technology" in a S-A-IN-T-based approach to development in the twenty first century is predicated on a reality mentioned earlier--information technology is all pervasive. It permeates society at a rate that could very well be so alarming and overwhelming that if Africa does not base its development logic on this technology, it would never become an active member of the global system that is emerging and one that is practically manipulated and regulated by information.

The question that one would ask at this juncture is how would a S-A-IN-T-based development work? There is no simple answer to the question raised. There are, however, some

fundamental characteristics that could be readily presented. The approach would constitute the basis for the following:

> National policy formulation on practically all sectors in order to determine resource needs --both human and physical, pertaining to the application of information technology in development programmes.
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> Human resource development and management in the procurement, processing, handling and marketing of information;
>
> Social research agenda on the uses and application of the new technologies in various social realms such as education, social lore, and other aspects of cultural preservation and subsequent intergenerational transmission;
>
> Planning for development and management of information industries to ascertain sustainabilty and selfreliance;

The above characteristics are indeed not exhaustive. They constitute essential areas that would have to be inextricably linked to-information technology if success is to be achieved in overall societal development. Furthermore the image that emerges from the above is that a S-A-IN-T-based development approach commits a given society to recognize the primacy of knowledge since information forms the basis of knowledge. The emerging societies of the twenty first century are going to be knowledge societies. The demise of socialism/communism makes it even more important to develop a knowledge-based society that would prepare citizens to participate fully in society without the protection provided by socialism in its hey days. Without protection, the citizen has to fend for him/herself. Access to the latest information in areas that are of interest to the citizen would be the basic requirement for success and perhaps better livelihood.

Within the above context, knowledge required for success is being made readily accessible but with costs. The costs range from pecuniary to societal--negative impact on culture etc. For societies in the twenty first century to survive, cheaper means of accessing information

would have to be devised. The implications for the above constitute network arrangements between various institutions ranging from government to industry; the creation of "information bridges" (IBs) that would cut costs for poorer nations to access required information by using such bridges until they can develop their capacities. By "information bridges" is meant accessing data that is not created by the institution that requires it either by purchasing such information in the forms of CD-ROM, or through networks. An information bridge does not connote or encourage dependency. The IB allows entities to work together through sharing, particularly in knowledge areas that are not required to be duplicated by every country. The rationale is, IBs deal with non-sensitive knowledge that could be transmitted without detriment to parties involved in the exchange. There are, for example, data bases on trade, health, education that are transmitted globally each day, which serve as bridges between institutions in disparate areas and also between governments and industries.

It stands to reason,therefore, that if such exchanges are going to be the norm for the twenty first century, development approaches in the South have to be S-A-IN-T-based. Furthermore, long-term development strategic planning would have to include not only sectoral concerns, but a more integrative approach in order to ascertain accurate resource requirements. In the absence of accurate projections of resource needs wastage results, as is evident in several countries in Africa were information technology equipment exist but not used. Concern for compatibility with areas that would have information links through information bridges should be reflected at the planning stages of development initiatives.

One key aspect that needs attention in a S-A-IN-T-based development approach is equity. As was mentioned earlier, IBs should not be construed as perpetuating dependency. IBs are two way traffic paths that should be mutually beneficial. The issue of equity is critical since dominance by one region or hemisphere could lead to serious confrontational encounters. It is precisely because of the above that emphasis is placed on the importance of grounding development on information in all of its facets, ascertaining that a country would plan to master this technology to an extent that it would eventually outgrow dependency and actually participate as partners in knowledge flow and exchange.

## 3. Towards a Sociology of Information

The development orientation referred to above should not be allowed to fall victim to the surges that have emerged regarding the development problematique. I referred earlier on to the swoop that the African continent experienced in the field of mass communications. As we learn to handle the invasion of the new information technologies, we should concomitantly address the issue of its sociology. The sociology of information involves a deliberate research agenda and action plan that would seek to investigate societal and individual attitudes towards information--what it is, who provides it, under whose authority it is, how it is distributed and used, through what channels, and in what sequence. The sociology of information referred to above is not necessarily confined to the new information technologies. It is critical to understand societal predispositions towards information as a whole not just the technologies that facilitate its generation, processing, storage, retrieval, dissemination and use. Thus, constitutional issues on rights of access to information on the individual, trade etc., would constitute part of the province of a society's predisposition

towards information. In the same vein, a corporation's or institution's attitude towards information as a source to support decision-making processes forms part of the substance that constitutes the sociology of information. An individual's information seeking behaviour also constitutes an aspect of the sociology of information.

Stemming from the above, the sociology of information is as critical an issue in the information problematique and a S-A-IN-T-based development approach, as any other element. Failure to understand the sociology of information would lead to problems in formulating national information policies that would be useful and applicable to the resolution of development exigencies. It is not uncommon to visit several offices--government and private in which one sees computers that are never used to facilitate work. The incumbent occupying that office perhaps requisitioned the equipment or was supplied simply because a computer is something good to see in an office these days. Furthermore, the incumbent might be the type who has risen through the ranks and believes that he requires no external sources of information other than what he has known to be the case notwithstanding advances in the given topic.

There are several instances in which young Africans are travelling abroad to study and could not use the library as a source for information in aiding their assignments because in their respective countries, the libraries are not functioning because books, periodicals and other items could not be acquired due to lack of foreign exchange to order books. Even though they may graduate from the university, the attitude towards information had long been formed in the days when they were not information conscious. Imagine such people rising

to positions in which serious issues on governance are part of their responsibilities, how would people like that function?

We could perhaps see one of the major root causes for the crises in governance that has become a characteristic feature in African development. There are top decision-makers who simply have neverdevelopment. There are top decision-makers who simply have never cultivated the habit of consulting with others in search of appropriate information before a decision is taken. Some have not read journals, books, or other sources of knowledge since graduation--if at all they are literate in the western sense of the term.

All of the above point towards the need to realize and act upon a research agenda that would lead to the creation of a corpus of work that would shed light on the sociology of information and its significance in dealing with the information imperatives in development. In carrying out this research agenda, researchers should not fall victims to paradigms that are imported to meet with domestic conditions. This is to say that the obsession should not be with what research paradigms exist in Europe or America

and how they could be "replicated" in Africa, but rather, what are the socio-cultural factors, political and psychological elements that constitute the arena within which a sociology of information in Africa could be discerned. Perhaps after a significant body of work emerges that present results from an African perspective, efforts should then be made to address ramifications for other paradigms. In this way, the problems that continue to haunt African communications research with regard to the socio-cultural aspect of methodology and theory construction would be averted.

This paper has attempted to present issues surrounding the concepts of S-A-IN-T-based development, the information problematique, and the sociology of information. It is basically an "issues" paper that advances positions that require further thinking, analysis and development. Amplification of the concepts presented herein would have to be done in order to get a handle on a research structure and design that would lead to investigations on the validity of these concepts. The paper marks the beginning of a process which I intend to continue working on perhaps in collaboration with others interested in the concepts herein presented.